REMARKS

By the *Office Action* of 7 September 2006, Claims 1-13, 45-46, and 49-51 are pending in the application, an all rejected. By the present *Response and Amendment with RCE*, Applicant amends Claims 1, 3-6, 8-13, 45 and 51, and leaves unchanged Claims 2, 7, 46, and 49-50. Thus Claims 1-13, 45-46 and 49-51 are pending.

No new matter is believed introduced by the present *Response and Amendment with RCE.* It is respectfully submitted that the present Application is in condition for allowance for the following reasons.

1. The Pending Claims

Amended independent Claims 1, 8 and 45 include recitations neither disclosed nor suggested in the cited references, all of which references have been exhaustively discussed in prior filings.

A. Construction Element With Asymmetrical Top and Bottom Surfaces

Claims 8 and 45 expressly recite a novel and non-obvious construction element wherein the top and bottom surfaces of the construction element, those surfaces exposed to ambient, are asymmetrical in their moisture resistant properties. This recitation is fully supported in the application as-filed, for example:

> Briefly described, in a preferred form, the present invention is a backerboard having a fiberglass mesh on one side, and an impervious moisture barrier membrane on the other side. Such an asymmetrical backerboard design (the two major surfaces of the core having differing moisture-resistant layers, providing different moisture-resistant properties) incorporates numerous advantages over the conventional backerboard design, including having lower manufacture costs, having a waterproof panel deliverable on-site, and having a simplified manufacturing process by eliminating the use of a carrier sheet or web. *Publication US 2002/0170648, ¶[0009].*

Claims 1, 8 and 45 recite yet another novel and non-obvious limitation, that being that the construction element is cementitiously asymmetrical, as it incorporates a cementitious surface above the core, and a non- cementitious surface below the core.

It is respectfully submitted that neither Mathieu, Dinkel, nor Fahmy, alone, or in combination, disclose, teach or suggest a construction element with either, much less both, asymmetric recitations as presently claimed.

B. Web vs. Membrane

Claims 1, 8 and 45 have been clarified to recite that the previously claimed "impervious reinforcement membrane" is an "impervious reinforcement *web*". This clarification has basis in the originally-filed application throughout its disclosure, referencing this particular element as being a "web".

As disclosed in the *Specification*:

> The present invention avoids the carrier sheet problem by providing a backerboard with a cementitious surface on only one side, and a high tensile strength impervious membrane **34** on the other side. Manufacturing this improved backerboard with the membrane **34** on the bottom side eliminates the need for a form, a carrier sheet, a release agent or a carrier web. The impervious membrane **34** which is incorporated into the present backerboard composite, essentially becomes a non-disposable carrier web. *Publication US 2002/0170648, ¶[0037].*

As it is well understood in the art, a web is required during manufacture to protect the conveyor belt (or form) from the plastic cementitious core. Further, a web inherently exhibits a higher tensile strength than liquid resin coatings. As such, one would not look to Fahmy as the Examiner has suggested in previous *Office Action*s, because Fahmy uses a liquid resin on the lower surface of the core, which would not protect the belt during manufacture, and because a high tensile strength reinforcement is required on the lower surface of the core to provide adequate flexural strength.

C. Impervious Reinforcement Web Tensile Strength

Claims 1, 8 and 45 have been clarified to include that the impervious non-cementitious reinforcement web has a sufficient tensile strength to provide the construction element with a flexural strength capable of supporting loads associated with elements used as an underlayment or backerboard. This clarification has basis in the originally-filed application, and previous forms of Claim 45.

It is well understood in the art that concrete backerboards must have substantial flexural strength to perform as a structural underlayment or backerboard to support tile or tile like materials while spanning wall studs or floor joists. In order to achieve these high flexural strengths the conventional backerboard is reinforced with a fiberglass mesh web with tensile strengths between 25 and 125 pounds per lineal inch. Thus, the present construction element must be constructed with adequately rated reinforcement webs, for example, having an impervious reinforcement web that has a tensile strength of, for example, 28 lbs per lineal inch.

Claims 1, 8 and 45 now recite that the tensile strength of the lower reinforcement membrane must provide the required flexural strength for the backerboard to perform as a substrate.

Conversely, Fahmy teaches:

> The thickness of the individual permeable resin layers may vary over wide limits from about .0002 inch to about .005 inch. *Preferably the thickness of each layer is about .001 inch. Col. 2, Lines 57-60 (emphasis added).*

As such, one would not look to Fahmy as the Examiner has suggested in previous *Office Actions*, because the Fahmy water impervious layer is comprised of an extremely thin .001" resin coating on the lower surface of the core, which would not provide the required tensile strength of the recited Claims. An additional reinforcement layer would have to be used with Fahmy's resin layer. Fahmy teaches away from the use of a single, high tensile strength impervious reinforcement web, as recited in the Claims.

D. Impervious Web Water Penetration Resistance

Claims 1, 8 and 45 have been clarified to include that the impervious non-cementitious reinforcement web has a resistance to free water penetration greater than or equal to felt paper. It is understood by those of skill in the art that the free water penetration resistance should be, for example, greater than or equal to that of commonly used construction moisture barriers including felt paper, Tyvek ® spun bonded olefin, or polyethylene. This clarification has basis in the originally-filed application throughout its disclosure.

As disclosed in the present *Specification*:

> While the conventional backerboard is generally stable and water resistant, it is not an ideal construction panel for use in wet environments due to several inherent limitations. For example, it is generally recommended by backerboard manufactures, and required by most building codes, to use an additional impervious moisture barrier behind the backerboard. Thus, contractors are forced to install the backerboard and separate moisture barrier in the field, at the construction site. Use of an impervious barrier membrane with the backerboard provides protection for the wood or steel structures under or behind the backerboard, and contains the moisture in the wet area. Examples of commonly used moisture barriers are felt paper, Tyvek®, spunbonded olefin and polyethylene. *Publication US 2002/0170648, ¶[0006].*

Prior to the present invention, the conventional backerboard came to the construction site, where the contractor was forced to add an impervious moisture barrier behind the conventional backerboard. It can be readily appreciated this additional step for the contractor, to modify the

conventional backerboard with the installation of a separate moisture barrier in the field, at the construction site, was disadvantageous.

The present invention overcomes this problematic step of installation at the construction site, by providing a prefabricated concrete backerboard integrated with a single reinforcement/moisture barrier web on the lower surface that exhibits a water penetration resistance greater than or equal to the common moisture barriers used in construction today. The present novel and non-obvious backerboard can thus be readily installed at the construction site *without* the installation of the separate moisture barrier required by the building codes.

By specifying a single web with both high tensile strength and adequate moisture resistance for the lower surface, the present backerboard can be manufactured directly on a conveyor or form while eliminating the need for a carrier sheet or carrier web, which in the past, was required to protect the conveyor or form during manufacture from the uncured cement slurry on the bottom surface of the conventional backerboard.

This revolutionary feature provides a backerboard that is easier and less expensive to manufacture, and also easier and less expensive for the contractor to install at the job site while maintaining the structural benefits of the conventional backerboard.

Tests have shown that felt paper, Tyvek®, spunbonded olefin, polyethylene, and other commonly used moisture barriers all exhibit a free water penetration resistance capable of maintaining a hydrostatic head of four inches for a period of 24 hours or more. On the other hand the porosity and absorbency of a cured hydraulic cement slurry layer is capable of maintaining a four inch hydrostatic head for merely a several minute period before the water starts to pass through the cured slurry.

Thus the existence of Mathieu's lower slurry layer **4**, after manufacture, would not lend any substantial water penetration resistance to the lower surface relative to the water penetration resistance of my specified impervious reinforcement web. Mathieu then teaches a symmetrical construction element with a very low water penetration resistant (pervious) cementitious surface on both faces of the core while teaching away from an asymmetrical construction element with a low water penetration resistant (pervious) cementitious surface on the top face of the core and a high water penetration resistant (impervious) non-cementitious surface on the lower face of the core.

In view of the above, it is respectfully submitted that pending independent Claims are believed novel and non-obvious over the cited references.

2. The 7 September 2006 *Office Action*

Claims 1, 8-9 and 13 are rejected under 35 USC 103(a) as being unpatenable over Mathieu in view of Fahmy and Dinkel. Claims 2-3 and 7 are also rejected under 35 USC 103(a) as being unpatenable over Mathieu in view of Fahmy and Dinkel Claims 4 and 10 are rejected under 35 USC 103(a) as being unpatenable over Mathieu in view of Fahmy, Dinkel and Nicoll Jr. Claims 5 and 11 are rejected under 35 USC 103(a) as being unpatenable over Mathieu in view of Fahmy, Dinkel and Flack et al. Claims 6 and 12 are rejected under 35 USC 103(a) as being unpatenable over Mathieu in view of Fahmy, Dinkel and Galer. Claims 45-46 and 29 are rejected under 35 USC 103(a) as being unpatenable over Mathieu in view of Fahmy.

It is respectfully submitted that the above grounds of rejection are overcome by the present clarifications to the Claims presented herein.

The pending Claims are further believed novel and non-obvious over the cited art as described below.

A. The Cited Art Neither Discloses, Teaches Nor Suggests a Construction Element with Asymmetric Top and Bottom Surfaces Including a Pervious Cementitious Bonding Surface on the Upper Principal Face and an Impervious Non-Cementitious Surface on the Lower Principal Face After Manufacture

Independent Claims 1, 8 and 45 recite a pervious cementitious bonding surface remaining on the upper principal face of the construction element, and an impervious non-cementitious surface remaining on the lower face of the construction element after the manufacture of the construction element. The Claims recite a novel and non-obvious construction element.

The present invention as recited in the Claims is not only asymmetrical due to upper and lower principal faces having different water permeation properties, but also asymmetrical because the upper principal face is a pervious cementitious bonding surface and the lower face is an impervious non-cementitious surface, as previously discussed.

The pervious cementitious upper principal surface provides a high strength bond with Portland cement mortars and mastics used to bond tile and tile-like materials. The impervious non-cementitious lower principal surface provides the ability to manufacture without the use of a carrier web or sheet.

The Examiner has stated, for example, that US Patent No. 6,488,792 to Mathieu discloses an asymmetrical panel, by referring to **Fig. 9** of that reference. Yet, **Fig. 9** is but a snapshot in time of the fabrication of a panel at which time, the panel is being built up, and asymmetrical, but when complete, is in fact a symmetrical panel - both as having upper and lower principal faces having the same water permeation properties (unlike the recited invention), and also symmetrical because the upper and lower principal faces have similar bonding surfaces. Thus, Mathieu does not teach or suggest an asymmetrical panel of the present invention as claimed in Claims 1, 8 and 45.

As recited in *Col. 19, Lines 9-12* of Mathieu:

> FIGS. 7 to 11 illustrate in schematic cross sectional views ***steps in the formation*** of another example panel in accordance with the present invention having a U-shaped edge reinforcing mesh; *Emphasis added.*

It is well known in the art of manufacturing cementitious backerboards that the pervious reinforcement mesh must be embedded in a cementitious slurry in order to be sufficiently bonded to the cementitious core after manufacture and curing of the backerboard. Mathieu acknowledges this at *Col. 1, Lines 24-26*, "The term "slurry" is to be understood as referring to a flowable mixture, e.g. a flowable mixture of water and a hydraulic cement."

Mathieu also states at *Col. 1, Lines 34-42*:

> The term "slurry pervious reinforcing mesh" is to be understood as characterizing a mesh as being suitable for use in the preparation of a concrete panel having openings sufficiently large ***to permit penetration of a cementitious slurry or a slurry component of a core mix into and through the openings so as to permit (mechanical) bonding of the mesh to the core either by for example by being cemented to the core or being embedded in the face or surface of the core of panel.*** *Emphasis added.*

Mathieu at **Fig. 9** merely illustrates that during manufacture, two different methods are used to mechanically bond the reinforcement mesh to the core with a cementitious slurry, (e.g. a flowable mixture of water and hydraulic cement). Inherently, the lower mesh (3) being cemented with a separate slurry coating (4) and the upper mesh (12) being embedded in the slurry component of core (10).

Yet, ***after manufacture***, both upper and lower principal faces of the Mathieu backerboard are faced with a pervious reinforcement mesh embedded in a cementitious slurry. This construction of the upper and lower principal faces is symmetrical, patentably distinguishable from the presently submitted Claims as amended.

Thus, both the Mathieu upper and lower principal faces of the core have a layer of slurry material, and both backerboard principal surfaces are cementitious while exhibiting approximately the same moisture permeability.

Mathieu further discloses a symmetrical construction element with a pervious reinforcement mesh embedded in a cementitious slurry on both the upper and lower principal faces of the construction element, as noted at *Col. 6, Lines 54-67:*

> In accordance with the present invention a panel may be provided with reinforced broad side face as follows: the web of fabric is deposited onto a supporting web member (e.g. a plastic protective film), a cementitious slurry is fed to the upper surface of the web and then spread uniformly over the web in controlled amount by means of a doctor (blade, bar or roller) adjustably spread from the supporting member. The web is drawn out of the slot formed by the doctor and supporting member, thereby applying the desired coating of slurry to the first reinforcing mesh; the core mix is then applied. Then the second web is deposited upon the upper face of the core layer; vibrating the layer of slurry in contact with the fabric or web until the slurry penetrates the web and the latter is completely embedded.

Mathieu is therefore a symmetrical construction element including a pervious reinforcing mesh embedded in cementitious slurry on both faces of the construction element as distinguishable by the present Claims.

The present invention is also patentably distinct from US Patent No. 3,284,980 to Dinkel. As disclosed by Dinkel:

> The product of this invention is best exemplified by a precast concrete panel consisting of five unified, cooperative layers or elements; (1) a thin surface layer of a hydraulic cement, neat or containing up to approximately an equal amount of fine aggregate, ***(2) a pervious layer of high strength non-water-susceptible fiber (such as mesh), embedded in layer (1)*** at or immediately beneath it's surface, and having its openings filled thereby, (3) a core layer of lightweight concrete containing hydraulic cement and lightweight aggregate having a substantial portion of its volume constituted by voids or openings, ***(4) a second layer similar to (2) of either the same fiber or an other of the same group of fibers, and (5) a second surface layer similar to (1) of the same hydraulic cement or one of the same group***. The hydraulic cement layers (1) and (4) not only penetrate the layers of fiber but also penetrate and fill the irregularities in the facial boundary of the core as is more fully described later in the specification.
>
> In the preferred embodiment of my invention the precast panel is formed with a core of lightweight aggregate and Portland cement and is ***covered on each of the two principal surfaces with a skin membrane of glass fiber***

mesh bonded to the core with a slurry containing Portland cement. *Col. 2, Lines 42-66; Emphasis added.*

Dinkel discloses a symmetrical construction element with a pervious reinforcement mesh embedded in a cementitious slurry on both the upper and lower principal faces of the construction element. Dinkel, thus, teaches that both the upper and lower principal faces of the panel require a layer of cementitious slurry material. *See Fig. 2, reference numeral 5.*

US Patent No. 6,171,680 to Fahmy consistently teaches a symmetrical composite sheathing material with identical layers on ***both*** the upper and lower principal faces of the paperboard sheathing, while teaching away from the present asymmetrical backerboard invention that has a pervious cementitious bonding surface on the upper principal face of the construction element and an impervious non-cementitious surface on only the lower principal face of the construction element.

Fahmy states:

> The composite sheathing material comprises:
>
> ***a first layer of paperboard, having a first layer of a permeable resin on a surface thereof***;
>
> a core layer of paperboard;
>
> a first adhesive layer positioned intermediate and adhered to the first layer of paperboard and the core layer of paperboard, the first adhesive layer including a plurality of apertures therethrough;
>
> ***a second layer of paperboard, having a second layer of a permeable resin on a surface thereof***; and
>
> a second adhesive layer positioned intermediate and adhered to the second layer of paperboard and the core layer of paperboard, the second adhesive layer including a plurality of apertures therethrough. *Col. 1, Lines 42-61. Emphasis added.*

The above statements and the figures of Fahmy show a paperboard sheathing with symmetrical layers on each side of the core.

Thus, one of skill in the art of manufacturing the present asymmetrical cementitious backerboards would not look to combine Fahmy's symmetrical non-cementitious sheathing board with either of Mathieu's or Dinkel's symmetrical cementitious backerboards to create an asymmetrical cementitious backerboard.

Further, it is respectfully submitted that one cannot combine references that teach or suggestion symmetrical constructions, and come up with an asymmetrical construction.

B. The Cited Art Neither Discloses, Teaches Nor Suggests A Pervious Cementitious Bonding Surface Remaining On The Upper Principal Surface Of The Construction Element After The Manufacture Of The Construction Element

Claims 1, 8 and 45 include a pervious cementitious bonding surface remaining on the upper principal face of the construction element. The pervious cementitious upper principal surface provides a high strength bond with Portland cement mortars and mastics used to bond tile and tile-like materials.

As shown in the present *Specification*, "[b]ackerboards have textured cementitious surfaces that provide for a high strength bond with mastics and Portland cement mortars that are used to adhere tile to the substrate in wet areas." *Publication US 2002/0170648, ¶5.*

It is also well known in the tile industry that one should never attempt to bond tile to a cementitious or concrete substrate which has previously had a polymer impervious resin sealer applied to its bonding surface. Filling the pervious cementitious bonding surface with polymer resins severely reduces the bonding strength of the setting mortar, because the polymer resin actually acts as a release agent.

Fahmy teaches that both principal faces of his composite sheathing material ***must*** have polymer impervious sealing resins applied. Yet, applying impervious resins to both faces of the present invention would render it useless as a tile backerboard, because the present asymmetrical backerboard invention would no longer benefit from an impervious moisture barrier membrane on the lower side of the core and a pervious cementitious bonding surface on the upper side of the core.

In addition, the cited art does not teach a construction element having ***only one*** impervious membrane. The Examiner has stated in previous *Office Action*s, for example, that "Fahmy (*Col. 2, Lines 53-58*) discloses a single impervious polymer membrane layer (22) remaining on the lower principle surface of the core (20) after the manufacture of the element to act as a water barrier."

Independent Claim 45 recites a construction element having ***only one*** impervious membrane, that being located on the lower principal face of the construction element. Fahmy discloses ***two*** layers, not only layer 22, but also layer 16. Claim 45 is a construction element limited to only a single layer, while Fahmy discloses more than one layer, and indeed teaches away from the use of only one such layer. In previous *Office Action*s, it appears silent to the

patentability of a construction element as claimed herein, with only one impervious membrane on the lower principal face of the construction element.

There is no suggestion to modify Fahmy to teach only a single impervious membrane, nor can Fahmy be used as a suggestion to modify another reference to include only a single impervious membrane, as that is not what Fahmy teaches. Fahmy teaches away from the use of only a single such layer.

Referring directly to the language the Examiner cites, Fahmy at *Col. 2, Lines 53-58* states:

> The ***permeable resin layers 16 and 22*** may comprise conventionally known "breathable" (permeable) resins made from polyesters, polyurethanes, acrylic polymers, polyesters, ester-ether copolymers, and the like, as well as blends and copolymers thereof. *Emphasis added.*

This language, and the figures of Fahmy, emphasize that the Fahmy element has at least ***two*** permeable membrane layers 16 and 22. That is, while the Fahmy discloses a "membrane (22) being a single polymer membrane layer," as noted by the Examiner, this is inapposite the question of whether Fahmy teaches or suggests only a single layer, which it does not.

Nowhere in the Fahmy patent is layer 22 referred to as the ***only*** polymer membrane layer. Additionally, in every part of Fahmy, layer 22, the lower polymer membrane, is immediately preceded by a reference to layer 16, the upper polymer membrane, or the polymer membranes are referred to as layers (plural).

Further, the Examiner has previously mischaracterizes the "core" of Fahmy. The Examiner has alleged that the layer of paperboard 20 is a "core" as the term is used in the present Claims, when actually the center layer of paperboard 12 is the core of Fahmy, analogous to the present invention.

Fahmy states at *Col. 2, Lines 11-20*:

> The composite sheathing material 10 comprises ***a core layer of paperboard 12***, a first layer of paperboard 14 having a first layer of a permeable resin 16 on a surface thereof, said first layer of paperboard 14 being adhered to the core layer of paperboard 12 by means of a first adhesive layer 18 therebetween, ***and a second layer of paperboard 20 having a second layer of a permeable resin 22 on a surface thereof, said second layer of paperboard 20 being adhered to the core layer of paperboard 12*** by means of a second adhesive layer 24 therebetween.

Fahmy requires that two layers of impervious membranes 16 and 22 be used, one on each side of the core 12, in order to construct the composite sheathing. with liquid water impermeability and water vapor permeability.

Further evidence of the requirement that Fahmy have at least two such layers is found at *Col 3, Lines 12-17*:

> Thus, while liquid water is prevented from passing through the composite sheathing material ***due to the presence of resin layers 16 and 22***, water vapor nevertheless is able to pass through the permeable resin layers 16 and 22 and through the apertures 26 of the first and second adhesive layers 18 and 24. *Emphasis added.*

Thus, Fahmy teaches that both resin layers 16 and 22 must be present to prevent liquid water from passing through the composite sheathing material.

Furthermore, as shown in **Fig. 4** of the present application, the impervious membrane (34) is adhered directly to the face of the core (22). Fahmy on the other hand requires a separate paperboard layer (20) between the impervious membrane (22) and the core (12). Thus Fahmy teaches away from the novel art of adhering the impervious membrane directly to the core.

Fahmy, Flack, or Nicoll Jr. neither disclose, teach, nor suggest the existence of any cementitious bonding surface or a cementitious core. Because the cementitious bonding surface and cementitious core are required features of a concrete backerboard, one in the art would not consider Fahmy, Flack or Nicoll Jr. when creating an asymmetrical concrete backerboard according to the present invention.

C. The Cited Art Neither Discloses, Teaches Nor Suggests An Impervious Non-Cementitious Reinforcement Web and a Non-Cementitious Surface Remaining on the Lower Face of the Construction Element

It is well known in the tile industry that concrete backerboards do not warp, swell, decay, delaminate or support mold or mildew growth when used in wet environments. Although the backerboards are virtually unaffected by moisture, free water will easily pass through the backerboard's pervious concrete structure. When these concrete backerboards are installed in a wet area they can not be relied on to keep moisture out of the stud or floor cavity. The result of moisture in the cavity would be structural deterioration and/or mold and mildew growth.

> For example, it is generally recommended by backerboard manufacturers, and required by most building codes, to use an additional impervious moisture barrier behind the backerboard. Thus contractors are forced to install the backerboard and a separate moisture barrier in the field, at the construction site. Use of an impervious barrier membrane with the

> backerboard provides protection for the wood or steel structures under or behind the backerboard, and contains the moisture in the wet area. *See Publication US 2002/0170648, ¶4.*

For this reason the present asymmetric concrete backerboard invention includes an impervious reinforcement web on the bottom side of the backerboard core to inhibit the penetration of moisture through the backerboard in lieu of the pervious fiberglass reinforcement mesh and cementitious slurry found on conventional concrete backerboards.

Claims 1, 8, and 45 recite a construction element having an impervious ***non-cementitious reinforcement web and a non-cementitious surface*** remaining on the lower face of the construction element after manufacture. Prior art constructions over which the present invention improves upon use common backerboard manufacturing techniques, wherein the reinforcement mesh (typically a pervious reinforcement layer) must be embedded in cementitious slurry in order to be sufficiently bonded to the cementitious core after manufacture and curing of the backerboard.

Mathieu states at *Col. 7, Lines 1-30*:

> In accordance with a different aspect the present invention provides a method for manufacturing a reinforced cementitious panel having a reinforced longitudinal edge comprising:
>
> forming a first slurry comprising a cementitious material and water;
>
> forming a core mix comprising a cementitious material, lightweight aggregate and water;
>
> providing a panel support substrate;
>
> laying over said panel forming support substrate a band of reinforcing mesh;
>
> laying a first sheet of reinforcing mesh over said panel forming support substrate such that said sheet of reinforcing mesh overlaps said band at an outer marginal portion of said first sheet of reinforcing mesh;
>
> depositing said first slurry on said first sheet of reinforcing mesh and distributing it across the breadth of said first sheet of reinforcing mesh so as to form a slurried reinforcement layer of predetermined thickness such that the ***first sheet of reinforcing mesh is embedded in said first slurried reinforcement layer***;
>
> depositing said core mix on said slurried reinforcement layer and distributing the core mix across said first sheet of reinforcing mesh so as to form a core layer of predetermined depth having an upper broad surface;

> laying a second sheet of reinforcing mesh over said core layer such that ***said second sheet of reinforcing mesh is embedded in said upper broad face*** and overlies said first sheet of reinforcing mesh.

After manufacturing, both the upper and lower principal surfaces of the Mathieu backerboard core are faced with a ***pervious*** reinforcement mesh embedded in a ***cementitious slurry***. Mathieu, thus, teaches that both the upper and lower principal faces of the backerboard require a layer of cementitious slurry material.

The present invention does away with the slurry on the lower principal surface as described by Mathieu, (*see* Mathieu *Fig. 9, reference numeral 4*), which limitation is now expressly recited in the amended Claims. Claims 1, 8, and 45 recite the present construction element having an impervious non-cementitious reinforcement web and a non-cementitious surface remaining on the lower face of the construction element after manufacture.

Additionally, and not surprisingly, Mathieu requires a carrier web or sheet to manufacture the backerboard, and thus protects the conveyor from the cementitious slurry on the bottom of the principal surface. The present invention can be manufactured *without* a carrier web or sheet, as its lower surface is non-cementitious.

Mathieu embodies the very essence of the prior art that the present application attempts to improve upon. Mathieu discloses ***manufacturing*** a construction element with a membrane covering the conveyor so the conveyor doesn't get soiled, but it does not disclose a construction element ***itself*** having the impervious membrane as recited in the Claims of the present invention. The membrane **2** of Mathieu is nothing more than a carrier for the conveyor, described as a deficiency in the prior art regarding another patent:

> U.S. Reissue Patent No. Re32,037 to Clear is a method for manufacturing cementitious reinforced panels and illustrates a concrete panel **11** having reinforcement layers **12**, **13** and a polyethylene layer **20** adjacent one of the layers **12**, **13**. Layers **12** and **13** are described as mesh reinforcing elements, preferably constituting fiber mesh like pervious webs, each entrained in hydraulic cement. Layer **20** is a carrier sheet placed under reinforcing element **12** during manufacture. Yet, such methods of constructing backerboards are not only deficient because they produce an inferior wet-area panel, but also because they require the use of a carrier sheet. *See Publication US 2002/0170648, ¶7.*

Similarly, while membrane **2** appears in many of the figures of Mathieu, Mathieu discloses that the membrane **2** is ***not*** part of the final construction element or panel, but (just like Clear), this membrane **2** is only a temporary film membrane that protects the cementitious lower

surface of the panel from the conveyor belt or support structure during the manufacturing process. This temporary film membrane is typically referred to in the art as a carrier sheet or carrier web. Yet, it is an object of the present invention to rid this requirement of the prior art use of a carrier web:

> The present method of constructing the backerboard dispenses with the prior art requirement of a carrier sheet or web. *See Publication US 2002/0170648, ¶12.*

Like Mathieu, Dinkel also requires that both the top and bottom pervious reinforcing mesh materials be embedded in a cementitious slurry. Dinkel describes the forming of the lower panel face with a cementitious surface at *Col. 4, Lines 34-1-30*:

> Into a form **20** of a size of the desired panel, a layer of fibrous material **4** is laid. A slurry containing hydraulic cement and of suitable consistency to permit penetration thereof through the openings in the fibrous layer **4** (shown as a woven mesh) is applied, as from the traveling supply pipe **21**. ***The amount of the cement slurry introduced is sufficient to cover the fibrous layer completely so that substantially all the fibers are immersed or embedded; the slurry penetrates the openings in the fibrous layer and fills them so that the layer is enveloped on both sides.*** *Emphasis added.*

Thus Dinkel teaches away from the use of an impervious non-cementitious surface on the lower face of the construction element.

Moreover, US Patent No. 4,450,022 to Galer requires that the lower pervious reinforcement mesh be embedded in the core material, wherein providing a cementitious lower principal surface. *See Fig. 4, reference numeral 14.* Galer also requires a carrier web (*see Fig. 4, reference numeral 13*) to protect the conveyor from the cementitious lower principal surface.

It is respectfully submitted that Mathieu, Dinkel, and Galer all teach away from the present invention, as all of the Claims now expressly recite that the lower face of the construction element has an impervious non-cementitious reinforcement web and a non-cementitious surface remaining on the lower face of the construction element after manufacture. That is, this present invention *eliminates* the prior art need of having a *cementitious* material on the lower principal face of the backerboard.

3. Fees

The RCE fee is due, and submitted herewith

No Claim fees are believed due. The number of Claims pending remains at or under twenty total, and at or under three independent.

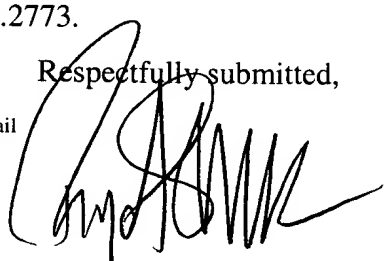
A three-month extension of time fee is believed due, and submitted herewith. This *Response and Amendment* is being filed within six months of the *Office Action.*

Should any further fees be due, authorization to charge deposit account No. 20-1507 is hereby given.

CONCLUSION

By the present *Response and Amendment with RCE*, the Application has been in placed in full condition for allowance. Accordingly, Applicant respectfully requests early and favorable action. Should the Examiner have any further questions or reservations, the Examiner is invited to telephone the undersigned Attorney at 404.885.2773.

Respectfully submitted,



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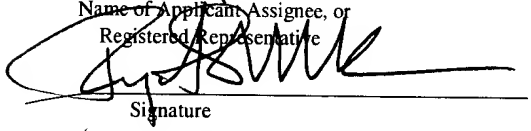

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Troutman Sanders LLP
Bank of America Plaza
600 Peachtree Street, N.E., Suite 5200
Atlanta, Georgia 30308-2216
United States
Phone: 404.885.2773
Fax: 404.962.6849